

ABSTRACT

A method for manufacturing SOI wafers is provided which allows the obtaining of a thin SOI layer having uniform in-plane thickness. In this manufacturing method, an oxygen ion implanted layer is first formed on an active layer wafer. This is then laminated to a base wafer with a embedded oxide film interposed therebetween. The active layer wafer side of the laminated wafer is then ground to remove a portion thereof. The remaining surface side of the active layer wafer is removed by polishing or KOH etching to expose the oxygen ion implanted layer. Oxygen ions are implanted to a uniform depth within the plane of the oxygen ion implanted layer in this oxygen ion implanted layer. Subsequently, oxidizing treatment is carried out to form an oxide film on the exposed surface of the oxygen ion implanted layer. Moreover, this oxide film is removed together with the oxygen ion implanted layer by an HF solution. The remaining portion of the active layer wafer serves as a thin SOI layer.